

REMARKS

In accordance with the foregoing, no claims have been amended. Claims 1-17 and 20-26 are pending and under consideration.

REJECTION UNDER NONSTATUTORY DOUBLE PATENTING

Claims 1-17, and 20-26 stand rejected under ground of nonstatutory double patenting over claim 1-37 of copending Application, Lee et al., U.S. Patent Publication No. 2004/0204804, in view of Lee et al., U.S. Patent Publication No. 2004/0158354. This rejection is respectfully traversed.

A Terminal Disclaimer is enclosed to overcome this rejection.

Accordingly, withdrawal of this rejection is respectfully requested.

REJECTION UNDER 35 USC § 103

Claims 1-10, 12-17 and 21-26 stand rejected under 35 USC §103(a) as being unpatentable over George, II et al. (George), U.S. Patent No. 4,777,416 in view of Kim, U.S. Patent No. 6,308,114; and claims 11 and 20 stand rejected under 35 USC § 103(a) as being unpatentable over George in view of Kim and further in view of Jacobs, U.S. Patent No. 6,580,246. These rejections are respectfully traversed.

First, Applicants respectfully request that any further Office Action include a citation to George, Kim and Jacobs in a PTO-892 form, which appears to be missing in the outstanding Office Action.

George discusses a recharge docking system for a battery-powered mobile robot which senses when the battery charge is below a predetermined level and halts the travel of the robot, so that it may return to the recharge station. The robot in George navigates, node by node, back to a base node at a recharge station via a determined path. See *Abstract of George*. The nodes in George together form a predetermined map, the map including information on a number of characteristics of the paths between nodes such as the distance of the paths and angles θ_p , in relation to global zero. The robot in George uses information from the predetermined map, including the angle θ_p in order to determine the next direction in which to move.

Kim describes a robot apparatus for detecting a sound signal outputted from a sound signal generating unit to move to a position of the sound signal generating device. See Abstract of Kim. Robots that are directed by sound traditionally have problems with accuracy due to surrounding sounds. The robot of Kim uses phase difference detection between each sound signal received in order to more accurately move the robot to the position of the sound generating means. See col. 1, lines 26-57 of Kim.

Claim 1 at least recites:

determining whether the mobile robot approaches or moves away from the designated location, at a third location arrived at after the mobile robot rotates by the first direction angle and then travels a second distance; and

if the result of the determination indicates that the mobile robot approaches the designated location, controlling the mobile robot to travel according to the first direction angle, and if the result indicates the mobile robot moves away from the designated location, calculating a second direction angle of the mobile robot at the third location, and controlling the mobile robot to travel according to the second direction angle.

The Office Action appears to interpret the claimed "if result of the determination indicates ... approaching the designated location, controlling ... travel ... according to the first direction angle, and if the result indicates ... moves away from the designated location, calculating a second direction angle of the mobile robot at the third location," as being met by a description of the position and orientation of the robot of George relative to the beacon of George (Col. 6, line 30 – Col. 7, line 15 of George as cited in Office Action.)

Also, the Office Action appears to interpret the abovementioned claimed feature as being met by a description of how the x-axis calibration system of the robot of George operates, the x-axis calibration system of George used to ensure that the robot does not stray from the paths between nodes as defined in the pre-determined map (Col. 9, line 10 – Col. 11, line 5 of George).

Finally, the Office Action also appears to interpret the abovementioned claimed feature as being met by a description of the operation of the beacon tracker system of George and also an avoidance path the robot of George will follow when encountering an obstacle (Col. 11, line 60 – Col. 12, line 65).

For all three of the passages cited in the Office Action relied upon to teach or describe the abovementioned claimed feature, Applicants respectfully submit that George still fails to teach or suggest "determining whether the mobile robot approaches or moves away from the designated location, at a third location."

All three of the cited passages of George are directed towards various ways the robot of George gathers information on its position with respect to a beacon or a path between nodes, but fails to describe anything regarding a determination regarding whether the robot has approached or moved away from the designated location, as claimed.

In George it would not be necessary to make such a determination because the robot of George merely moves from node to node along the path between the nodes, pre-defined in the map, until it reaches the base node at a recharge station.

Further, George also does not teach or suggest “controlling the mobile robot to travel according to the first direction angle” or “calculating a second direction angle ... and controlling the mobile robot to travel according to the second direction angle,” as the angles that the robot of George will travel are pre-determined as well and defined as part of the map defining the paths between nodes.

Applicants respectfully request that if the current rejection against the claims is maintained, that the Office Action specifically identify what particular element of George, sets forth the claimed “if the result of the determination indicates that the mobile robot approaches the designated location, controlling the mobile robot to travel according to the first direction angle, and if the result indicates the mobile robot moves away from the designated location, calculating a second direction angle of the mobile robot at the third location, and controlling the mobile robot to travel according to the second direction angle.”

Moreover, Applicants respectfully submit that the secondary reference of Kim fails to cure the abovementioned deficiency of George, as Kim describes robot movement via sound-direction using angles between sound receivers and one sound source, and not direction angles of the robot with respect to a first and second location.

Therefore, Applicants also respectfully submit that neither George nor Kim whether considered alone or in combination teach or describe at least the abovementioned features of claim 1.

Thus, in view of the above, Applicants respectfully submit that claim 1 and claims 2-10 and 12 which depend therefrom, patentably distinguish over the cited art.

Independent claims 13 and 26 at least recite similar features, with differing scope and breadth, and thus in view of the above reasons, Applicants respectfully submit that claims 13 and 26 and claims 14-17 and 21-25 which depend from claim 13 patentably distinguish over the prior art.

A withdrawal of the rejection against claims 1-10, 12-17 and 21-26 is respectfully requested.

Regarding the rejection of claims 11 and 20, Applicants respectfully submit that Jacobs similarly fails to cure the abovementioned deficiency of George, as Jacobs describes a robot touch shield device, and the movement path of the robot of Jacobs also does not teach or suggest at least the claimed feature described above with respect to independent claims 1, 13 and 26.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

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Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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